

14.—The presence of this depression to the southwest of the Azores during the 29th and 30th was indicated by scattering reports, which, while they allowed of approximately locating its centre and path on those dates and showed that severe weather prevailed, were not sufficiently numerous to admit of determining its probable path previous to the 29th.

OCEAN ICE.

No ice was reported during the month.

In November, 1886, the only ice reported was a berg from fifty to sixty feet high observed on the 2d, in N. 45° 20', W. 45° 26', from the s. s. "Elstow."

In November, 1885, the only iceberg reported was observed in N. 48° 00', W. 51° 10'. In November, 1884, several icebergs were seen in N. 45° 56', W. 52° 38'. For the corresponding month of 1883 and 1882 no ice was reported.

FOG.

The limits of fog-belts to the westward of the fortieth meridian are shown on chart i by dotted shading.

As compared with the chart for the preceding month, October, 1887, slight changes are shown in the eastern and southern limits of fog in the vicinity of the Newfoundland Banks, while to the westward of the sixtieth meridian there has been an increase in the number of fog-areas reported in the trans-Atlantic tracks and along the coast north of the fortieth parallel.

The meteorological conditions which attended the development of fog on the fourteen dates for which it was reported near Newfoundland were as follows: On the 1st an area of low pressure passing to the northward of the Banks was accompanied during the morning by low barometric readings, southerly winds, and fog. During the 3d dense fog attended the passage of a cyclonic area northeastward over the southern edge of the Banks. On the 6th the conditions were unsettled attending the passage of cyclonic areas, one over, and the other to the northward of the Banks; no report of fog on that date has, however, been received. From the 8th to the 10th, inclusive, fog prevailed with the passage of a cyclonic area eastward over the Gulf of Saint Lawrence, Newfoundland, and the ocean north of the Banks. During the 12th, 13th, and 14th, the development of fog attended the presence over the Gulf of Saint Lawrence and northern Newfoundland of low barometer areas. On the 17th a cyclonic area moved northeast over northern Newfoundland, and dense fog prevailed over the Banks. From the 20th to the 24th, inclusive, south to east winds and fog prevailed south and southeast of Newfoundland. During this period an area of low pressure moved northeast

along the New England coast, over the Gulf of Saint Lawrence, and the ocean north of Newfoundland. Subsequent to the 24th no cyclonic areas appeared near Newfoundland, and no fog was reported.

On the 20th, 27th, and 28th fog was reported off the south coasts of Nova Scotia and Cape Breton Islands. On the first-mentioned date, south to southeast winds prevailed in that region with the presence on the New England coast of an area of low barometer, while during the 27th and 28th the winds were from the southeast quadrant and anti-cyclonic.

During the 25th, 26th, and 27th fog was reported north of the fortieth parallel and west of the sixty-fifth meridian, the winds during that period being generally from south to east and anti-cyclonic.

The following are the limits of fog-areas on the north Atlantic Ocean during November, 1887, as reported by shipmasters:

Date.	Vessel.	Entered.			Cleared.		
		Lat. N.	Lon. W.	Time.	Lat. N.	Lon. W.	Time.
1	S. S. Swansea	48 35	46 05	7 p. m.	45 00	47 30	5.20 p. m.
3	S. S. Caspian	48 35	46 05	7 p. m.	48 18	47 25	Midnight.
8	Fog at Saint John's, N. F.						
9	S. S. Egypt	46 45	47 00		46 15	48 30	
9-10	S. S. City of Richmond	47 49	42 49		48 03	41 51	
12	S. S. Rhein	43 28	51 00	10 a. m.	43 04	52 13	3.30 p. m.
12-13	S. S. Barrowmore	46 00	49 32	11.30 p. m.	45 26	51 08	8 a. m.
13-14	S. S. Marsala	46 22	46 43	11.34 a. m.	45 29	50 59	6.24 a. m.
13-14	S. S. Waeland	46 44	45 48		45 13	50 10	
14	S. S. Rugia	44 40	51 31	1 a. m.	44 49	50 47	3 a. m.
17	S. S. Hermann	46 43	46 18		46 30	47 40	
20	S. S. Caspian	46 15	48 43		46 02	49 49	
20	S. S. Dorian	44 20	63 40	1 a. m.			6 p. m.
20	S. S. Surrey	41 31	47 50		41 33	48 15	
20	S. S. Scandinavian	48 51	45 01		43 36	47 51	
20	S. S. Polynesia	44 47	52 57	6 a. m.	44 32	53 51	9.30 a. m.
20	S. S. Noordland	46 20	49 00		46 00	50 00	
20	Fog at Saint John's, N. F.	45 05	52 56		44 45	54 03	
21	Fog at Saint John's, N. F.						
21	S. S. Polynesia	45 35	50 50		45 20	51 30	At inter-
21	S. S. Noordland	43 00	60 35		42 50	61 15	vals.
21	S. S. Cephalonia	47 10	43 43		46 22	45 40	
21-22	S. S. Leerdam	45 58	45 14	8.30 p. m.	45 50	46 32	a. m.
22	Fog at Saint John's, N. F.						
22	S. S. Aurania	44 04	50 06		44 30	48 33	[vals.
22-23	S. S. Cephalonia	45 58	46 45		44 16	52 59	At inter-
22-23	S. S. Strabo	45 00	51 49		47 00	45 00	
23	S. S. Hekla	45 45	50 30		45 00	52 30	
24	do	44 30	55 20		43 50	56 45	
25	S. S. Surrey	40 40	66 40		40 15	68 10	
25-26	S. S. Cephalonia	42 24	69 29		42 20	70 53	
25-27	S. S. Yemassee	40 10	74 00		↑	↑	
26	S. S. Leerdam	40 41	66 20		40 41	66 44	
27-28	S. S. Sarnia	45 42	58 29		44 26	63 22	

• Halifax.

† New York City.

TEMPERATURE OF THE AIR (expressed in degrees, Fahrenheit).

The distribution of mean temperature over the United States and Canada for November, 1887, is exhibited on chart ii by dotted isothermal lines. In the table of miscellaneous data are given the monthly mean temperatures, with the departures from the normal, for the various stations of the Signal Service. The figures opposite the names of the geographical districts in the columns for mean temperature, precipitation, and departures from the normal, show respectively the averages for the several districts. The normal for any district may be found by adding the departure to the current mean for the district when the departure is below the normal, and subtracting when above. On chart iii the daily mean temperatures and departures from the normal are graphically shown for selected stations.

The month of November, 1887, was slightly colder than the average in the following-named sections of the country: along the Atlantic coast south of New England, in the Saint Lawrence Valley, lower lake region, lower Ohio valley, and the eastern part of the upper Mississippi valley. In these districts the departures were less than 1° at a majority of stations. There were but two small areas over which the temperature was as much as 2° below the normal, viz., (1) eastern New York (in the vicinity of Albany) and adjacent portions of Massachusetts and Vermont; and (2) the North Carolina coast in the vicinity

of Wilmington. In the other districts, embracing much the greater part of the United States, the mean temperatures were above the November normal. The region over which the most marked departures above the normal temperature occurred extends from Idaho southeastward to western Texas, the excess of temperature generally ranging from 4° to 7°.

The following are some of the most marked departures from normal temperatures at Signal Service stations:

Above normal.		Below normal.	
Salt Lake City, Utah.....	7.7	Wilmington, N. C.....	3.1
Santa Fe, N. Mex.....	6.9	Albany, N. Y.....	2.9
Cheyenne, Wyo.....	5.0	Portland, Me.....	2.3
El Paso, Tex.....	4.2	Key West, Fla.....	2.0
Red Bluff, Cal.....	4.2	Norfolk, Va.....	1.9
Yuma, Ariz.....	4.0	Hatteras, N. C.....	1.8
Fort Sill, Ind. T.....	3.9	Grand Haven, Mich.....	1.8
Fort Grant, Ariz.....	3.6	Savannah, Ga.....	1.6

RANGES OF TEMPERATURE.

The monthly and the greatest and least daily ranges of temperature at Signal Service stations are given in the table of miscellaneous meteorological data. The region in which the monthly ranges were greatest extends from western Kansas and eastern Colorado northward to British America; they generally

exceeded 90° in this region, and at some stations amounted to 100°, or more; the monthly ranges were least along the central and north Pacific coasts, where they fell to 35°, or below.

The following are some of the extremes:

Greatest.		Least.	
Valentine, Nebr.....	106.7	Tatoosh Island, Wash.....	21.0
North Platte, Nebr.....	106.4	Key West, Fla.....	25.0
Fort Laramie, Wyo.....	105.7	Fort Canby, Wash.....	26.1
Huron, Dak.....	104.0	Astoria, Oregon.....	29.9
Fort Sully, Dak.....	103.7	San Francisco, Cal.....	31.6
Fort Shaw, Mont.....	103.5	Port Angeles, Wash.....	37.2
Fort Assinaboine, Mont.....	100.4	San Diego, Cal.....	37.6
Bismarck, Dak.....	99.8	Galveston, Tex.....	39.2

The greatest daily ranges of temperature exceeded 40° over a large part of the country, including the Rocky Mountain region and Missouri, central Mississippi, and lower Ohio valleys; over the entire country they varied from 11° at Tatoosh Island, Wash., on the 10th, to 55° at Colorado Springs, Colo., on the 27th, and 59° at San Carlos, Ariz., on the 14th.

The least daily ranges varied from 2° at Oswego, N. Y., on the 16th, to 19° at Boise City, Idaho, on the 27th.

Table of comparative maximum and minimum temperatures for November.

State or Territory.	Stations.	For 1887.		Since establishment of station.				Length of record.
		Max.	Min.	Max.	Year.	Min.	Year.	
Alabama.....	Mobile.....	79.8	25.2	82.0	1879, 1882	27.0	1872, 1881	16
Do.....	Montgomery.....	79.0	21.4	83.0	1879, 1882	21.0	1872	16
Arizona.....	Yuma.....	90.6	37.8	91.0	1879	31.0	1880	13
Do.....	Fort Grant.....	74.7	27.7	79.0	1878, 1879	20.0	1880	9
Arkansas.....	Fort Smith.....	79.1	17.0	86.0	1882	22.0	1882	6
Do.....	Little Rock.....	77.0	0.4	83.0	1882	10.0	1880	9
California.....	Los Angeles.....	86.0	38.8	88.0	1884	34.1	1886	11
Do.....	San Francisco.....	73.7	42.1	78.0	1871	41.0	1880	17
Colorado.....	Denver.....	73.7	-14.2	76.0	1876, 1879	-18.0	1877	16
Do.....	Pike's Peak.....	73.7	-14.2	76.0	1876, 1879	-18.0	1877	16
Connecticut.....	New Haven.....	62.7	18.0	71.5	1882	2.0	1875	15
Dakota.....	Bismarck.....	72.8	-25.0	67.0	1876	-28.0	1875	14
Do.....	Deadwood.....	64.3	-10.9	68.0	1878	-16.0	1880	10
Dis. of Columbia.....	Washington City.....	70.0	22.7	80.0	1879	12.5	1880	18
Florida.....	Cedar Keys.....	77.1	26.8	81.0	1881	33.0	1881	9
Do.....	Pensacola.....	76.2	28.3	81.3	1882	28.1	1881	9
Georgia.....	Augusta.....	78.4	23.5	84.9	1885	24.0	1873	15
Idaho.....	Boise City.....	71.7	5.6	70.0	1879	7.0	1880	11
Illinois.....	Chicago.....	75.1	10.0	80.5	1882	7.0	1872	16
Do.....	Chicago.....	67.0	-1.0	72.0	1874, 1882	-2.0	1872	16
Indiana.....	Indianapolis.....	73.5	3.8	75.0	1879	5.0	1880	15
Indian Ter.....	Fort Sill.....	76.0	8.1	84.0	1885	4.0	1880	11
Iowa.....	Dubuque.....	71.5	-12.0	69.5	1886	9.0	1875	15
Do.....	Des Moines.....	73.4	-9.1	71.0	1882	0.0	1880	10
Kansas.....	Dodge City.....	79.7	-12.9	83.0	1875	7.0	1880	14
Do.....	Leavenworth.....	80.3	-4.3	77.0	1874, 1886	0.0	1872	17
Kentucky.....	Louisville.....	75.1	8.4	78.0	1879	4.5	1872	16
Louisiana.....	New Orleans.....	80.1	34.0	84.7	1885	31.5	1881	17
Do.....	Shreveport.....	79.8	26.3	86.0	1882	18.0	1880	15
Maine.....	Eastport.....	56.8	4.0	64.0	1882	-13.0	1875	15
Do.....	Portland.....	65.7	7.6	66.0	1883	6.0	1875	16
Maryland.....	Baltimore.....	69.1	25.1	78.0	1879	15.0	1880	16
Massachusetts.....	Boston.....	69.4	12.0	75.0	1876	2.0	1875	17
Michigan.....	Marquette.....	64.5	-5.3	69.0	1886	9.0	1875	14
Do.....	Grand Haven.....	58.8	12.7	69.0	1886	0.0	1880	15
Minnesota.....	Saint Vincent.....	69.1	-30.2	58.7	1884	-22.0	1883	8
Do.....	Saint Paul.....	70.2	-20.5	73.6	1886	-24.5	1875	16
Mississippi.....	Vicksburg.....	81.1	27.1	84.8	1885	23.0	1877	16
Missouri.....	Saint Louis.....	79.3	10.5	82.0	1879	5.0	1872	17
Montana.....	Ft. Assinaboine.....	70.6	-29.8	68.1	1884	-26.8	1886	8
Do.....	Helena.....	65.5	-11.1	62.0	1884	-17.0	1880, 1881	8
Nebraska.....	North Platte.....	81.2	-25.2	79.0	1876	-10.0	1877	14
Do.....	Omaha.....	79.6	-13.6	74.0	1874	6.0	1875	15
Nevada.....	Winnemucca.....	71.3	-3.4	70.8	1885	9.0	1880	9
New Hampshire.....	Mt. Washington.....	63.5	22.8	72.0	1882	10.0	1875	14
New Jersey.....	Atlantic City.....	67.0	14.9	77.0	1878	-11.0	1880	15
New Mexico.....	Santa Fe.....	64.5	14.6	68.3	1881	2.5	1875	15
New York.....	Buffalo.....	67.4	22.7	74.0	1882	7.0	1875	18
Do.....	New York City.....	73.9	21.5	80.0	1879	18.0	1880	10
North Carolina.....	Charlotte.....	73.8	26.0	83.0	1877	20.0	1872	17
Do.....	Wilmington.....	74.8	8.2	75.0	1879	5.0	1880	18
Ohio.....	Cincinnati.....	68.9	4.2	75.0	1879	0.0	1880	11
Do.....	Sandusky.....	68.0	25.2	68.0	1873	22.5	1880	15
Oregon.....	Portland.....	69.1	20.0	69.7	1884	17.5	1880	11
Do.....	Roseburg.....	74.2	14.2	79.0	1876	4.0	1880	15
Pennsylvania.....	Pittsburg.....	69.6	25.0	77.0	1876	8.0	1875	17
Do.....	Philadelphia.....	60.0	19.9	70.0	1881	19.0	1880	8
Rhode Island.....	Block Island.....	77.0	28.4	82.0	1879	28.0	1873	15
South Carolina.....	Charleston.....	73.0	14.7	80.5	1881	11.5	1872	17
Tennessee.....	Knoxville.....	76.3	17.8	82.0	1879	16.0	1877	15
Do.....	Memphis.....	80.2	39.7	89.0	1882	30.0	1880	12
Texas.....	Brownsville.....	79.3	-5.4	83.4	1885	-5.0	1880	8
Do.....	Fort Elliott.....	67.0	11.3	70.0	1882	3.0	1880	14
Utah.....	Salt Lake City.....	75.3	22.4	80.2	1882	13.0	1880	15
Virginia.....	Lynchburg.....	73.7	29.7	80.0	1879	20.0	1872	17
Do.....	Norfolk.....	58.8	9.8	60.0	1885	3.0	1881	7
Washington.....	Spokane Falls.....	61.0	19.8	63.0	1884	21.0	1882	11
Do.....	Olympia.....	67.5	-18.8	70.0	1874	21.0	1875	15
Wisconsin.....	La Crosse.....	68.7	-3.6	70.0	1874, 1882	-5.0	1880	18
Do.....	Milwaukee.....	70.1	-11.5	69.0	1876	-20.0	1875	15
Wyoming.....	Cheyenne.....	70.1	-11.5	69.0	1876	-20.0	1875	15

DEVIATIONS FROM NORMAL TEMPERATURES.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperatures for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for November, 1887; (4) the departures of the current month from the normal; (5) the extreme monthly means for November during the period of observations and the year of occurrence:

State and Station.	County.	(1) Normal for the month of Nov.	(2) Length of record.	(3) Mean for November, 1887.	(4) Departure from normal.	(5) Extreme monthly mean temperature for November.			
						Highest.		Lowest.	
						Am't.	Year.	Am't.	Year.
Arkansas.		0	Years	0	0		0		
Lead Hill	Boone	47.7	6	46.6	-1.1	50.0	1883	45.2	1886
California.									
Fall Brook	San Diego	54.3	10	56.0	+1.7	57.7	1885	48.6	1879
Sacramento	Sacramento	51.1	22	47.8	-3.3	57.0	1875	44.7	1880
Connecticut.									
Middletown	Middlesex	39.2	29	38.4	-0.8				
New Haven	New Haven	40.4	101	40.4	0.0				
Waterbury	New Haven	40.5	12	37.4	-3.1				
Dakota.									
Webster	Day	31.1	5	30.7	-0.4				
Florida.									
Aroher	Alachua	61.6	5	61.7	+0.1				
Illinois.									
Aurora	Kane	38.2	9	35.4	-2.8				
Greenville	Bond	41.7	9	40.8	-0.9				
Griggsville	Pike	35.0	7	39.0	+4.0				
Mattoon	Coles	40.1	8	39.0	-1.1				
Peoria	Peoria	39.6	32	41.1	+1.5				
Riley	McHenry	33.0	27	32.6	-0.4				
Sandwich	De Kalb	35.9	35	37.2	+1.3				
Sycamore	De Kalb	35.4	7	33.3	-2.1				
Indiana.									
Connersville	Fayette	40.0	6	39.0	-1.0				
Lafayette	Tippecanoe	37.5	8	37.3	-0.2				
Logansport	Cass	39.9	33	39.4	-0.5	48.0	1862	30.3	1880
Mauzy	Rush	36.7	7	34.4	-2.3				
Spiceland	Henry	38.5	34	38.5	0.0				
Summan	Ripley	40.7	5	40.4	-0.3				
Vevay	Switzerland	43.7	21	42.7	-1.0				
Worthington	Greene	48.4	6	49.3	+0.9				
Iowa.									
Monticello	Jones	33.4	34	32.5	-0.9	41.5	1859	25.0	1858
Kansas.									
Wellington	Sunman	41.4	9	43.8	+2.4	45.5	1879	29.0	1880
Yates Centre	Woodson	39.3	7	39.7	+0.4	48.2	1885	25.7	1880
Maine.									
Belfast	Waldo	36.0	28	36.6	+0.6				
Cornish	York	34.9	30	34.2	-0.7	37.7	1860	25.7	1873
Gardiner	Kennebec	35.7	51	35.1	-0.6				
Orono	Penobscot	33.5	19	33.9	+0.4				
Maryland.									
Cumberland	Alleghany	40.9	16	39.8	-1.1	45.0	1883, '85	35.0	1880
Fallston	Harford	42.3	17	41.6	-0.7	46.7	1870	37.5	1873
Massachusetts.									
Amherst	Hampshire	38.1	50	40.0	+1.9				
Cambridge	Middlesex	39.1	65	40.4	+1.3				
Fitchburg	Worcester	36.5	31	36.4	-0.1				
New Bedford	Bristol	41.8	76	40.7	-1.1				
Somerset	Bristol	39.5	17	41.3	+1.8				
Springfield	Hampden	41.1	20	38.3	-2.8				
Taunton	Bristol	41.3	16	40.2	-1.1				
Williamstown	Berkshire	35.7	32	36.4	+0.7				
New Brunswick.									
Saint Johns	Saint Johns	35.0	27	35.9	+0.9				
New Hampshire.									
Concord	Merrimac	37.5	20	38.0	+0.5				
Hanover	Grafton	33.5	27	32.7	-0.8				
New Jersey.									
Dover	Morris	39.6	5	38.2	-1.4				
New York.									
Factoryville	Tioga	37.0	6	36.3	-0.7	40.0	1883	35.0	1882
Humphrey	Cattaraugus	34.4	4	36.0	+1.6	37.1	1883	30.1	1886
Palermo	Oswego	35.4	34	33.1	-2.3	41.9	1859	28.8	1880
Ohio.									
Wauseon	Fulton	38.7	17	37.1	-1.6	40.3	1883	27.9	1880
Pennsylvania.									
Corry	Erie	36.3	7	36.7	+0.4	39.6	1883	31.6	1880
Dyberry	Wayne	34.6	20	35.0	+0.4	38.2	1878, '81	26.4	1873
Grampian Hills	Clearfield	34.5	17	35.8	+1.3				
South Carolina.									
Stateburg	Sumter	53.5	7	52.0	-1.5	55.9	1883	51.2	1882
Rhode Island.									
Providence	Providence	40.2	56	41.1	+0.9				
Texas.									
New Ulm	Austin	59.2	16	59.8	+0.6	65.6	1879	49.6	1880
Vermont.									
Lunenburg	Essex	31.5	38	32.5	+1.0				
Stratford	Orange	34.6	43	32.8	-1.8	37.9	1886	30.9	1880
Virginia.									
Bird's Nest	Northampton	47.4	19	47.8	-1.6				
Dale Enterprise	Rockingham	49.5	7	47.4	-0.1	62.3	1883	41.3	1880, '84
Variety Mills	Nelson	44.0	10	42.2	-1.8	47.5	1881	39.5	1880
Wytheville	Wythe	41.9	23	43.7	+1.8				
West Virginia.									
Helvetia	Randolph	40.9	11	40.7	-0.2				

LOW TEMPERATURE.

Omaha, Nebr.: a minimum temperature of $-13^{\circ}.6$ was registered at 8 a. m. on the 27th, this is $7^{\circ}.6$ lower than has previously been recorded in November since the establishment of the Signal Service station in 1871.

MEAN AUTUMNAL TEMPERATURES.

Lead Hill, Boone Co., Ark.: the mean temperature of the autumn of 1887, 59° , is 2° lower than the normal of the past six years; during that period the warmest autumns, 62° , occurred in 1881 and 1884, and the coldest, 59° , in 1885.

Palermo, Oswego Co., N. Y.: the mean temperature of autumn of 1887, 41° , is 5° below the average of the last thirty-four years; the highest autumn mean in that time, 51° , occurred in 1855, and the lowest during the present year.

New Ulm, Austin Co., Tex.: the mean temperature of the autumn of 1887, 68° , is 1° below the average of the last sixteen years.

FROST.

There were no dates during the month on which frost did not occur; they were most extensively reported on the 1st, 2d, 3d, 18th, 21st, 22d, 29th, 30th; they were least frequent on the 7th, 24th, 25th, and 26th.

Freezing temperatures occurred in all parts of the United States during the month, with the following exceptions: extreme southern Florida; along the immediate Gulf coast from the vicinity of Galveston, Tex., to New Orleans, La., and along the immediate coast of the Pacific, with exception of the Oregon coast.

The Signal Service observer at Titusville, Fla., reports: "a minimum temperature of $32^{\circ}.5$ occurred on the 21st; ice formed upon exposed places, slightly damaging tender vegetation. The remarkable escape from frost is doubtless attributed

to the smoke and arid condition of the atmosphere and the prevailing fresh breeze, which prevented its formation."

ICE.

Ice formed in the southern parts of the country as follows: Cedar Springs, S. C., 6th, 20th, 21st; Corsicana, Tex., 11th; Oxford, Miss., 20th; Little Rock, Ark., ice of one-half inch in thickness formed on the 20th; ice also formed on the 21st and 27th; Montgomery, Ala., Cedar Keys, Duke, and Pensacola, Fla., Augusta, and Savannah, Ga., 21st; Archer, Fla., 21st, 22d; Willows, Cal., 23d, 24th; Sacramento, Cal., 25th to 27th; Keeler, Cal., 26th; Willcox, Ariz., and Palestine, Tex., 27th; Corpus Christi and San Antonio, Tex., 28th.

TEMPERATURE OF WATER.

The following table shows the maximum, minimum, and mean water temperature, as observed at the harbors of the several stations; the monthly range of water temperature; the average depth at which the observations were made, and the mean temperature of the air:

Temperature of water for November, 1887.

Station.	Temperature at bottom.				Mean temperature of air at the station.	Average depth of water in feet and tenths.
	Max.	Min.	Range.	Monthly mean.		
Canby, Fort, Wash.....	53.8	45.1	8.7	49.4	46.5	15.6
Cedar Keys, Fla.....	68.2	54.3	13.9	65.3	62.4	7.3
Charleston, S. C.....	63.3	54.7	8.6	59.0	56.2	36.6
Eastport, Me.....	48.3	45.5	2.8	46.5	37.6	16.0
Galveston, Tex.....	69.8	52.4	17.4	64.4	64.0	14.2
Key West, Fla.....	79.2	71.7	7.5	75.1	73.0	17.2
New London, Conn.....	53.8	45.3	8.5	50.0	42.3	11.9
New York City.....	51.9	43.6	8.3	47.3	43.7	14.8
Pensacola, Fla.....	71.2	60.4	10.8	67.0	60.2	17.3
Portland, Me.....	46.6	41.6	5.0	44.2	37.7	16.5

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for November, 1887, as determined from the reports of about eight hundred stations, is exhibited on chart iv. In the table of miscellaneous meteorological data are given, for each Signal Service station, the total precipitation, with the departures from the normal. The figures opposite the names of the geographical districts in columns for mean temperature, precipitation, and departures from the normal, show respectively the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal, and subtracting when above.

The precipitation for November, 1887, as compared with the normal, is deficient in nearly every part of the United States. The deficiency is most marked in the east Gulf states, where the average rainfall for the month is 0.69, or about fifteen per cent. of the normal. In the south Atlantic states about thirty-five per cent. of the normal amount of rain fell. In other districts east of the Mississippi River the deficiencies have been somewhat less marked, but upon the whole only about sixty per cent. of the normal amount of rain fell at signal stations east of the river named. Between the Mississippi and Rocky Mountains the percentage of deficiency is slightly less than in the districts east of the Mississippi—amounting to about seventy-five per cent.—there being a slight excess over the average in the Rio Grande Valley and southern slope. In the middle Pacific coast region the rainfall amounted to about 1.00, which is about one-third the average for that section; in the south Pacific coast region it exceeded the average slightly, and in the north Pacific coast region about 6.00 of rain fell, this amount being slightly below the normal.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported

by voluntary observers, (1) the average precipitation for a series of years; (2) the length of record during which the observations have been taken, and from which the average has been computed; (3) the total precipitation for November, 1887; (4) the departures of the current month from the average; (5) and the extreme monthly precipitation for November during the period of observations and the year of occurrence:

State and station.	County.	(1) Average for the month of Nov.	(2) Length of record.	(3) Total for November, 1887.	(4) Departure from average.	(5) Extreme monthly precipitation for November.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
Arkansas.		Inches.	Years.	Inches.	Inches.	Inches.		Inches.	
Lead Hill.....	Boone.....	4.00	6	3.64	-0.34	5.77	1883	2.50	1885
California.									
Fall Brook.....	San Diego.....	1.47	11	1.03	-0.56	5.92	1885	0.00	1883
Sacramento.....	Sacramento.....	2.04	22	0.54	-1.50	9.65	1887	trace.	1884
Connecticut.									
Canton.....	Hartford.....	4.64	26	2.36	-2.28				
Hartford.....	Hartford.....	3.46	16	2.21	-1.25				
Middletown.....	Middlesex.....	3.87	29	2.37	-1.50				
Wallingford.....	New Haven.....	3.85	29	2.54	-1.31				
Dakota.									
Webster.....	Day.....	1.86	5	0.29	-1.57	4.33	1886	0.08	1883
Florida.									
Archer.....	Alachua.....	1.48	5	0.37	-1.11				
Illinois.									
Aledo.....	Mercer.....	3.90	10	1.00	-2.90				
Mattoon.....	Coles.....	3.98	8	6.84	+2.86				
Peoria.....	Peoria.....	2.31	32	1.62	-0.69				
Riley.....	McHenry.....	1.98	27	1.87	-0.11				
Sandwich.....	De Kalb.....	2.76	35	2.35	-0.41				
Indiana.									
Logansport.....	Cass.....	2.99	33	5.21	+2.22	6.30	1864	0.41	1865
Spiceland.....	Henry.....	2.97	27	3.22	+0.25				
Vevay.....	Switzerland.....	3.08	21	3.05	-0.03	5.73	1883	0.73	1872
Iowa.									
Cresco.....	Howard.....	1.37	14	1.03	-0.34				
Monticello.....	Jones.....	2.32	34	0.77	-1.55	5.29	1879	0.12	1866
Kansas.									
Wellington.....	Sunman.....	0.96	9	0.18	-0.78	1.85	1884	0.10	1886
Yates Centre.....	Woodson.....	1.71	7	0.39	-1.32	3.18	1881	0.39	1887
Louisiana.									
Grand Coteau.....	St. Landry.....	6.42	5	1.86	-4.56				